

CLAIMS

1. Display screen structure (2) comprising a display screen assembly (4), which in turn includes a display screen (6) and a protective panel (12) having an inner
5 face (20) positioned, at a predetermined distance, in front of an outer face of the display screen (6) and allowing the viewing of material on the display screen (6) therethrough, characterised in that a layer of filler transparent material (14) is provided between
10 said inner face (20) of the protective panel (12) and said outer face of the display screen (6).
2. Display screen structure (2) as claimed in claim 1, characterised in that said filler material (14) is an encapsulating material and preferably one which is
15 stable upon exposure to ultra violet light, such as epoxy gel material, clear soft gel epoxy encapsulant, epoxy resin or any combination of epoxy gel material, clear soft gel epoxy encapsulant and epoxy resin.
3. Display screen structure (2) as claimed in claim 1,
20 characterised in that said filler material (14) is provided in an enclosed volume (18) defined by said outer face of the display screen (6), said inner face (20) of the protective panel (12) and at least one bead of material which forms at least one gasket (16, 17)
25 which defines a side wall.
4. Display screen structure (2) as claimed in claim 3, characterised in that said at least one gasket (16, 17)

is formed of a material provided in a substantially linear path around the periphery of said protective panel (12) and said display screen (6).

5 5. Display screen structure (2) as claimed in claim 3, characterised in that said at least one gasket (16, 17) is provided between said display screen (6) and a metal frame (8) surrounding said display screen (6).

10 6. Display screen structure (2) as claimed in claim 4, characterised in that said material used to form said at least one gasket (16, 17) is a polymer material, preferably of a colour, such as black, to merge with the colour of the display screen (6).

15 7. Display screen structure (2) as claimed in claim 1, characterised in that said display screen (6) is a flat screen with a surrounding metal frame (8) and preferably an LCD display screen with a flexible face which is protected by the protective panel (12) from damage, said protective panel (12) being preferably manufactured from any suitable material such as glass,
20 acrylic or the like and being preferably provided for touch screen functionality.

8. Method of forming a display screen structure (2), said structure (2) including a display screen (6) and a protective panel (12) having an inner face (20)
25 mounted, at a predetermined distance, in front of an outer face of the display screen (6), characterised in that said method comprises the steps of:

- applying at least one bead of material to said inner face (20) of the protective panel (12) and/or said outer face of the display screen (6) to form at least one gasket (16, 17), said at least one gasket (16, 17) being positioned around the display screen (6);
 - bringing the protective panel (12) and the display screen (6) together to contact opposing faces of said at least one gasket (16, 17) at said predetermined distance apart, and
 - introducing a layer of filler material (14) to substantially fill the volume (18) defined between said inner face (20) of the protective panel (12), said outer face of the display screen (6) and said at least one gasket (16, 17).
9. Method as claimed in claim 8, characterised in that two linear beads of material are provided to form two gaskets (16, 17).
10. Method as claimed in claim 8, characterised in that said filler material (14) and the material used to form said at least one gasket (16, 17) are introduced in a fluid state to fill the volume (18) and subsequently cured.
11. Method as claimed in claim 10, characterised in that the filler material (14) is introduced to fill the volume (18) once the gasket material has cured and sealed the volume (18), said filler material (14) being injected through said at least one gasket (16, 17) at

at least one locations (26) to introduce the filler material (14) into the volume (18) and fill the same.

12. Method as claimed in claim 11, characterised in that said filler material (14) is injected through an
5 aperture formed by injection means (31) which, when said injection means (31) have been removed, reseals due to the resilience of the metal frame (8) surrounding the display screen (6) or additional material can be applied to said metal frame (8) to seal
10 the aperture, or the curing of said filler material (14) prevents leakage.

13. Method as claimed in claim 8, characterised in that the quantity of the filler material (14) required to fill the volume (18) of known dimensions is calculated
15 and a metering system is provided to monitor the quantity of filler material (14) entering the volume (18).

14. Method as claimed in claim 8, characterised in that said layer of filler material (14) has a predetermined
20 depth.